

***FlyBy Math™* Alignment**
Middle School Mathematics Core Content for Assessment
version 4.0 October 2005

Number Properties and Operations

Estimation

Content Statement

MA-08-1.2.1

Students will estimate to solve real-world and/or mathematical problems with rational numbers checking for reasonable and appropriate computational results.
DOK - 2

***FlyBy Math™* Activities**

--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

--Predict outcomes and explain results of mathematical models and experiments.

Ratios and Proportional Reasoning

Content Statement

MA-08-1.4.1

Students will apply ratios and proportional reasoning to solve real-world problems (e.g., percents, constant rate of change, unit pricing, percent of increase or decrease).
DOK - 3

***FlyBy Math™* Activities**

--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

Measurement

Measuring Physical Attributes

Content Statement

MA-08-2.1.1a

Students will estimate measurements in standard units in real world and/or mathematical situations.

***FlyBy Math™* Activities**

--Predict outcomes and explain results of mathematical models and experiments.

MA-08-2.1.1b

Students will explain how measurements and measurement formulas are related or different (perimeter and area; rate, time, and distance; circumference and area of a circle).

--Use the distance-rate-time formula to predict and analyze aircraft conflicts.

--Predict outcomes and explain results of mathematical models and experiments.

Systems of Measurement

Content Statement

MA-08-2.2.1

Students will provide examples of and apply money, time, and U.S. Customary and metric units of measurement to solve real-world problems.
DOK - 2

***FlyBy Math™* Activities**

--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.

Geometry	
Coordinate Geometry	
<p>Content Statement</p> <p>MA-08-3.3.1 Students will identify and graph ordered pairs on a coordinate system, correctly identifying the origin, axes, and ordered pairs; and will apply graphing in the coordinate system to solve real-world problems. DOK - 2</p>	<p><i>FlyBy Math™</i> Activities</p> <p>--Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes.</p>

Data Analysis & Probability	
Data Representations	
<p>Content Statement</p> <p>MA-08-4.1.1 Students will analyze and make inferences from data displays (drawings, tables/charts, pictographs, bar graphs, circle graphs, line plots, Venn diagrams, line graphs, stem-and-leaf plots, scatter plots, histograms, box-and-whiskers plots). DOK - 3</p>	<p><i>FlyBy Math™</i> Activities</p> <p>--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.</p>
<p><i>MA-08-4.1.1a</i> <i>Students will explain how different representations of data (e.g., tables, graphs, diagrams, plots) are related.</i></p>	<p>--Predict outcomes and explain results of mathematical models and experiments.</p> <p>--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.</p>
<p>MA-08-4.1.2 Students will:</p> <ul style="list-style-type: none"> • Construct data displays (Venn diagrams, tables, line graphs, stem-and-leaf plots, circle graphs, scatter plots); • Will explain why the type of display is appropriate for the data; and • Will explain how misleading representations affect interpretations and conclusions about data (e.g., changing the scale on a graph). <p>DOK – 2</p>	<p>--Represent distance, rate, and time data using tables, line plots, bar graphs, and line graphs.</p> <p>--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.</p>

Algebraic Thinking

Patterns, Relations, and Functions

Content Statement

MA-08-5.1.2

Students will represent, analyze, and generalize functions using tables, graphs, words, and algebraic expressions, and will apply the functions to solve real-world problems.

DOK - 2

***FlyBy Math™* Activities**

--Use tables, graphs, and equations to solve aircraft conflict problems.

MA-08-5.1.3

Students will explain how the change in one variable affects the change in another variable (e.g., if rate remains constant, an increase in time results in an increase in distance).

DOK - 2

--Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.

--Interpret the slope of a line in the context of a distance-rate-time problem.